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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/490,172	01/22/2000	Deborah T. Marr	2207/7942	6827

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Kenyon & Keynon
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EXAMINER

CHEN, TE Y

ART UNIT	PAPER NUMBER
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2161

MAIL DATE	DELIVERY MODE
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12/21/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/490,172	MARR, DEBORAH T.	
	Examiner	Art Unit	
	SUSAN Y. CHEN	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-25, 27-30 is/are rejected.
- 7) ☐ Claim(s) 26 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 09/23/2010 has been entered.

Claims 22-31 are pending for examination. Claims 1-21 have been canceled.
Claims 22-31 are newly added.

Telephone Interview

A telephone interview has been conducted between applicant's representative (Shawn W. O'Dowd) and the examiner (Susan Chen) on Dec. 14, 2010. During the interview the examiner indicated that the new claims filed after BPAI broad decision was too broad, it should be refined to reflect the novelty of instant invention. For examiner, amending each of the independent claims with the features cited in the instant specification of the APIC TPR register. Applicant's representative indicated that he will

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consider the examiner's suggestion, however, there is no further action was taken, as such, the prior art rejections are listed below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 22-24 and 27-30, are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,076,157 issued to Borkenhagen et al. (hereinafter referred as '157).

Regarding 22, '157 disclosed the following claimed limitations [e.g., Abstract], comprising:

a memory in a processor to store a value to indicate which of a plurality of threads to be executed by the processor has a higher priority [e.g., the multi-thread processing schema at Abstract, lines 1- 12] ;

a resource allocated between said plurality of threads depending on a priority assigned to each thread in said memory [e.g., per the transaction caching and thread state Register Bit allocation schema of Fig(s). 4A-B and associated texts];

control logic coupled to said resource [e.g., a thread switching logic processing with a time-out counter processing at Abstract, lines 7 -12]; and a counter coupled to said control logic, wherein a value is set for each thread depending on the priority assigned to each thread, and said counter is to be loaded with one of said set values by said control logic, such that one of said threads with a higher priority is to be allocated longer access to the resource than another of said threads with a lower priority based on a counting operation on the set value loaded into said counter [e.g., col. 5, lines 41 – col. 6, lines 14, Fig.(s) 4-5 and associated texts].

Regarding claim 23, the claimed thread-priority down-counter is met by the time-out register (e.g., 430, Fig. 4) with a decrement operation clock time-out value processing at col. 5, lines 1 -26].

Regarding claim 24, '157 further disclosed that said resource is a unit in the processor system [e.g., Fig. 2 and associated texts].

Regarding claim 27, '157 further disclosed that said resource is a rename/allocation unit and more instructions from said thread with a higher priority are loaded into said rename/allocation unit than from one of said threads having a lower priority based on the set values loaded into said counter [e.g., col. 10, lines 25 -56, 400, Fig. 4 and associated texts].

Regarding claim 28, '157 further disclosed that said resource is an execution unit and more instructions from said thread with a higher priority are loaded into said execution unit than from one of said threads having a lower priority based on the set values loaded into said counter [e.g., 100, Fig. 1 and associated texts].

Regarding claim 29, '157 further disclosed that said resource is an retire unit and more instructions from said thread with a higher priority are loaded into said retire unit than from one of said threads having a lower priority based on the set values loaded into said counter [e.g., per the thread switch control controller (450, Fig. 4) and associated texts].

Regarding claim 30, '157 further disclosed that said resource is a bus and more bus requests are serviced from said thread with a higher priority than from one of said threads having a lower priority based on the set values loaded into said counter [e.g., per the unit 152, Fig. 1].

Claim Rejections - 35 USC § 103

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of U.S. Patent No. 6,105,127 issued to Kimura (hereinafter referred as '127).

Regarding claim 25, '157 did not specifically disclosed that the said resource is a decode unit.

However, '127 disclosed the claimed limitations [e.g., units: 1-3, Fig. 2 & units: 1-3, Fig. 13 and associated texts].

'157 and '127 are analogous art and both in the same endeavor to optimize the performance of the extended multiprocessor system via controlling the interrupt signal flow among a plurality of thread processing. Thus, with the teachings of '157 and '127 in front of him/her, it would have been obvious for an ordinary skilled artisan at the time the invention was made to apply the resource decoding unit technique as taught by '127 into the '157 invention, because by doing so, the combined invention of '157 and '127 will allow multiple instructions being concurrently decoded into microcode operations for facilitating a multi-thread priority control logic unit to detect a specific decoded microcode instruction in a clock execution cycle without to reinventing the wheel.

Allowable Subject Matter

Claims 26 and 31, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1) U.S. Patent No. 6,018,759 issued to Doing et al. which disclosed a thread switch tuning tool for optimal performance in a computer processor.

2) U.S. Patent No. 6,105,051 issued to Borkenhagen et al. which disclosed apparatus and method to guarantee forward progress in execution of threads in a multithreaded processor.

3) U.S. Patent No. 6,757,811 issued to Mukherjee which disclosed slack fetch to improve performance in a simultaneous and redundantly threaded processor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUSAN Y. CHEN whose telephone number is (571)272-4016. The examiner can normally be reached on Monday - Friday from 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mofiz Apu can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Susan Y Chen/

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Primary Examiner
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December 18, 2010